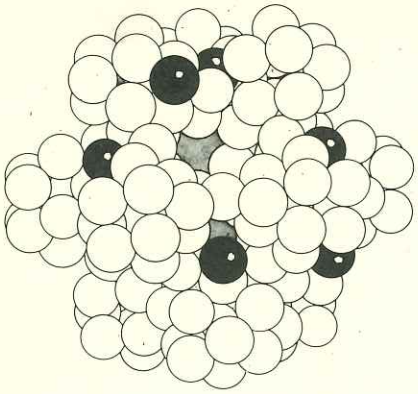
FORM 9695-A

Linde
TRADE-MARK



MOLECULAR SIEVES

FOR SELECTIVE ADSORPTION

BENZENE
DATA SHEETS

LINDE AIR PRODUCTS COMPANY
A Division of Union Carbide and Carbon Corporation
General Office: New York, N. Y. UCC Offices in Principal Cities

In Canada
LINDE AIR PRODUCTS COMPANY, Division of Union Carbide Canada Limited
Toronto Montreal Winnipeg Vancouver

Outside U. S. and Canada
LINDE AND ALLOYS DEPARTMENT, Union Carbide International Company
A Division of Union Carbide and Carbon Corporation
30 East 42nd Street, New York 17, N. Y., U.S.A.

DYNAMIC DRYING OF BENZENE

Linde Molecular Sieves have been compared with silica gel and activated alumina for the dynamic drying of benzene. The degree of dryness attainable and the adsorption capacities of the three adsorbents at water breakthrough were measured at various inlet water concentrations in the benzene.

A laboratory column, 0.5 inches in diameter by 15 inches long, protected from contamination by atmospheric moisture, was used in these tests. All tests, unless otherwise noted on the data sheets, were performed with fully activated adsorbents. Analysis for water was carried out on spot samples by the Karl Fisher method which can detect as little as 10 PPM water in the liquid.

Except where noted in the individual data sheets, the operating conditions for these tests were as follows:

General Operating Conditions:

Adsorbent bed length	15 in.
Adsorbent bed diameter	0.5 in.
*Liquid linear velocity	1.0 ft/min.
Temperature	ca 77°F.
Pressure	Atmospheric

Adsorbent data:

Molecular Sieve, Type 4A	14 x 30 Mesh
Activated Alumina, Type F-1	14 x 30 Mesh
Silica Gel	14 x 30 Mesh

Some equilibrium data have been obtained to define the maximum capacity for water, in benzene, of three adsorbents. All data are at about 77°F. and atmospheric pressure.

Adsorbent	Water Concentration in Benzene, Wt. - %	Adsorption Capacity Wt. - % on Adsorbent
Molecular Sieve, Type 4A	0.041	19
Molecular Sieve, Type 4A	0.065	24
Silica Gel	0.032	13
Activated Alumina F-1	0.043	7.5

*Liquid linear velocity based on empty column.

Linde Trade-Mark

MOLECULAR SIEVES

DATA SHEET NO. SD-1081

Tonawanda Research Laboratory

LINDE AIR PRODUCTS COMPANY

A Division of Union Carbide and Carbon Corporation

MOLECULAR SIEVES

Linde Trade-Mark

DATA SHEET NO. 50-1082

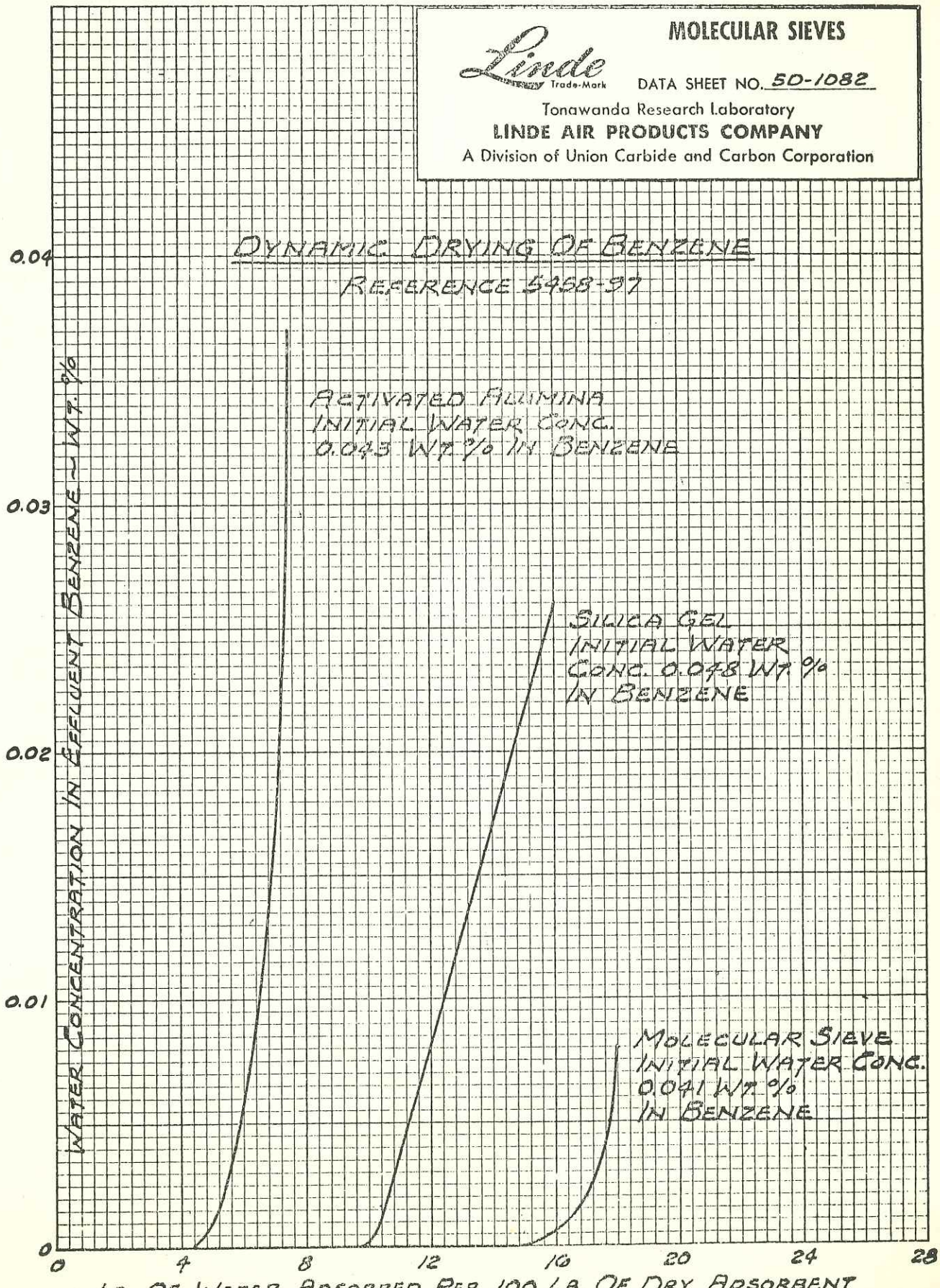
Tonawanda Research Laboratory

LINDE AIR PRODUCTS COMPANY

A Division of Union Carbide and Carbon Corporation

DYNAMIC DRYING OF BENZENE

REFERENCE 5468-37



MOLECULAR SIEVES

Linde Trade-Mark

DATA SHEET NO. SD-1083

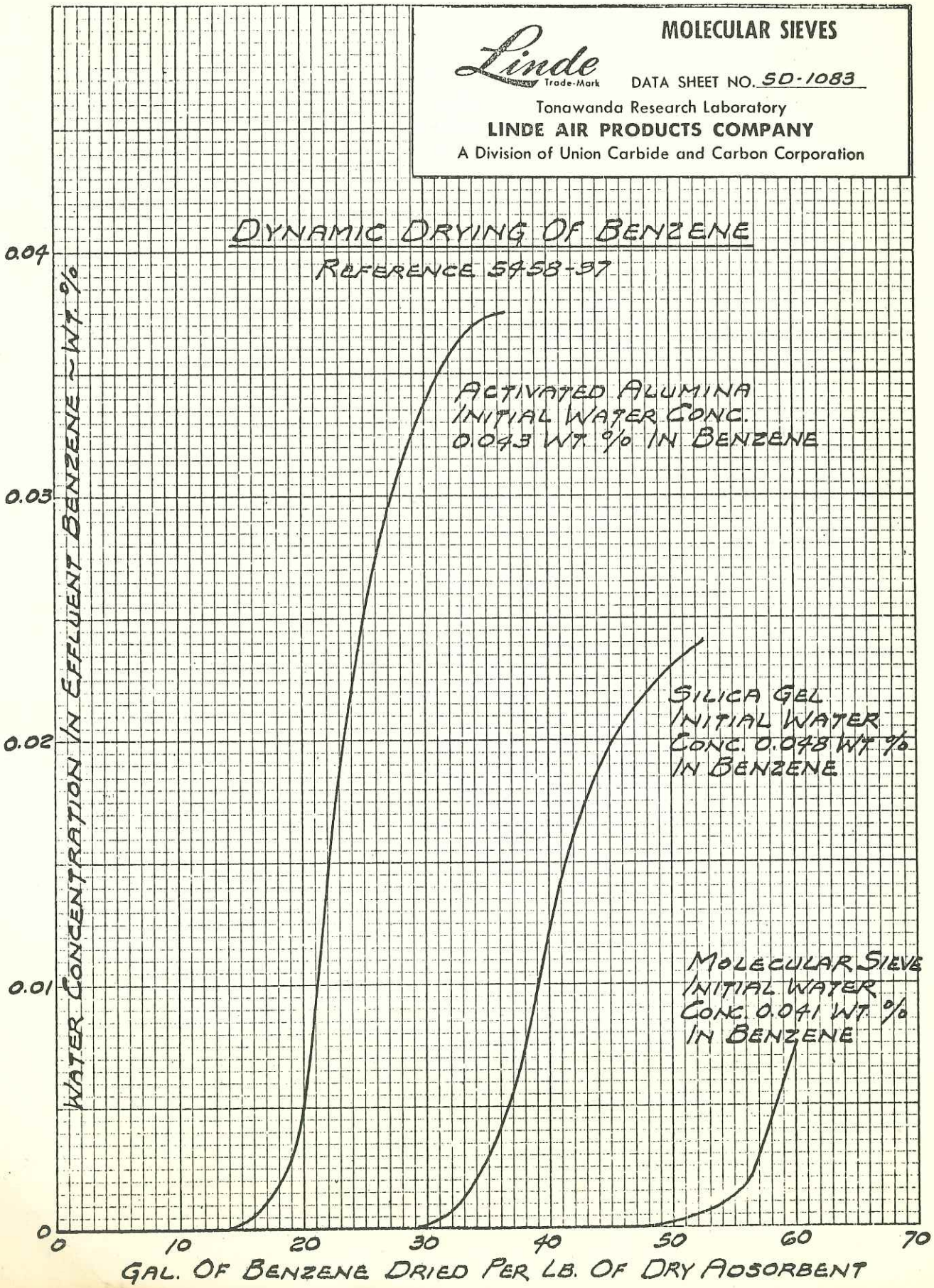
Tonawanda Research Laboratory

LINDE AIR PRODUCTS COMPANY

A Division of Union Carbide and Carbon Corporation

DYNAMIC DRYING OF BENZENE

REFERENCE 5458-37



MOLECULAR SIEVES

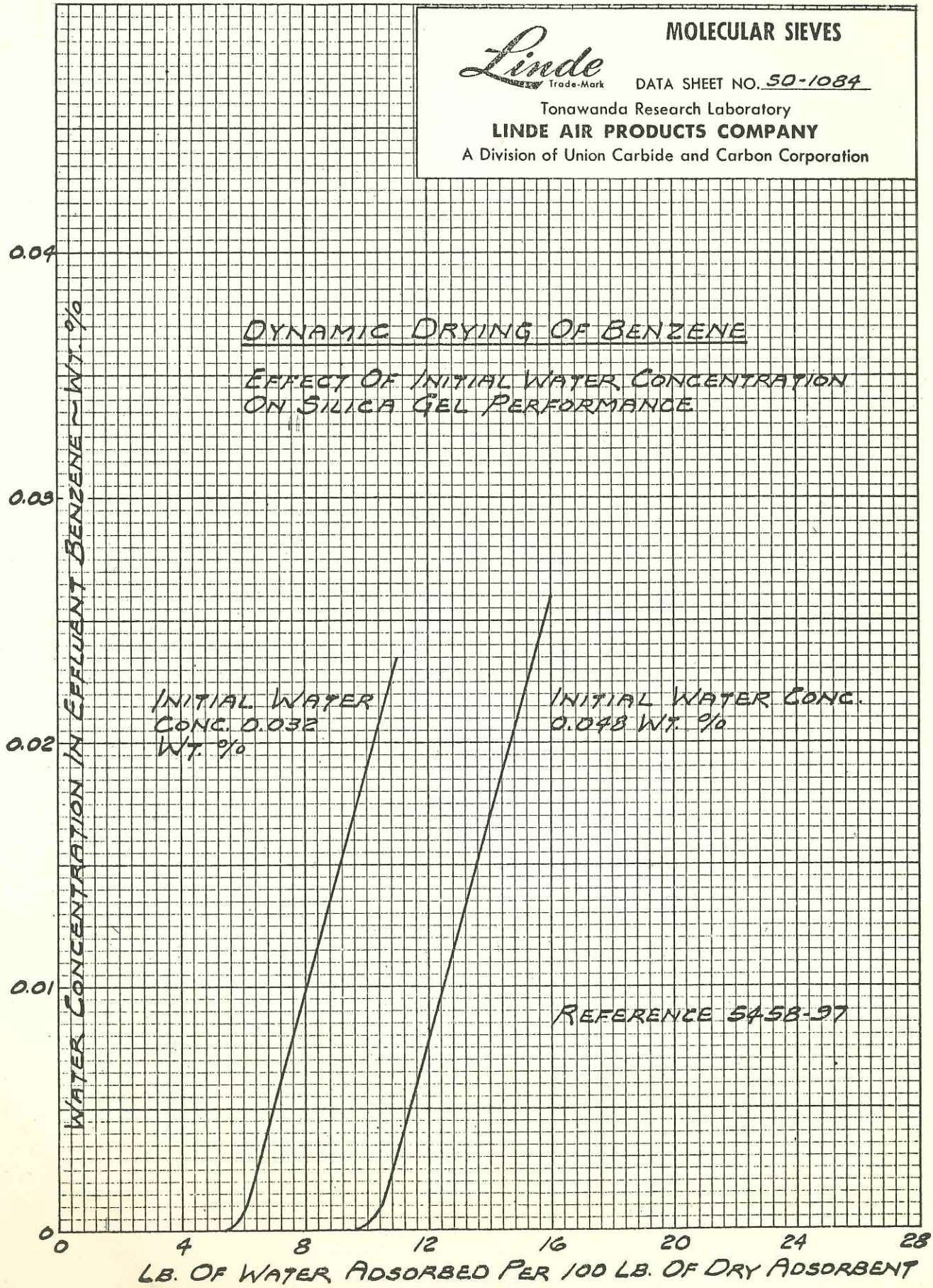
Linde Trade-Mark

DATA SHEET NO. 50-1084

Tonawanda Research Laboratory

LINDE AIR PRODUCTS COMPANY

A Division of Union Carbide and Carbon Corporation



MOLECULAR SIEVES

Linde Trade-Mark

DATA SHEET NO. SO-1085

Tonawanda Research Laboratory

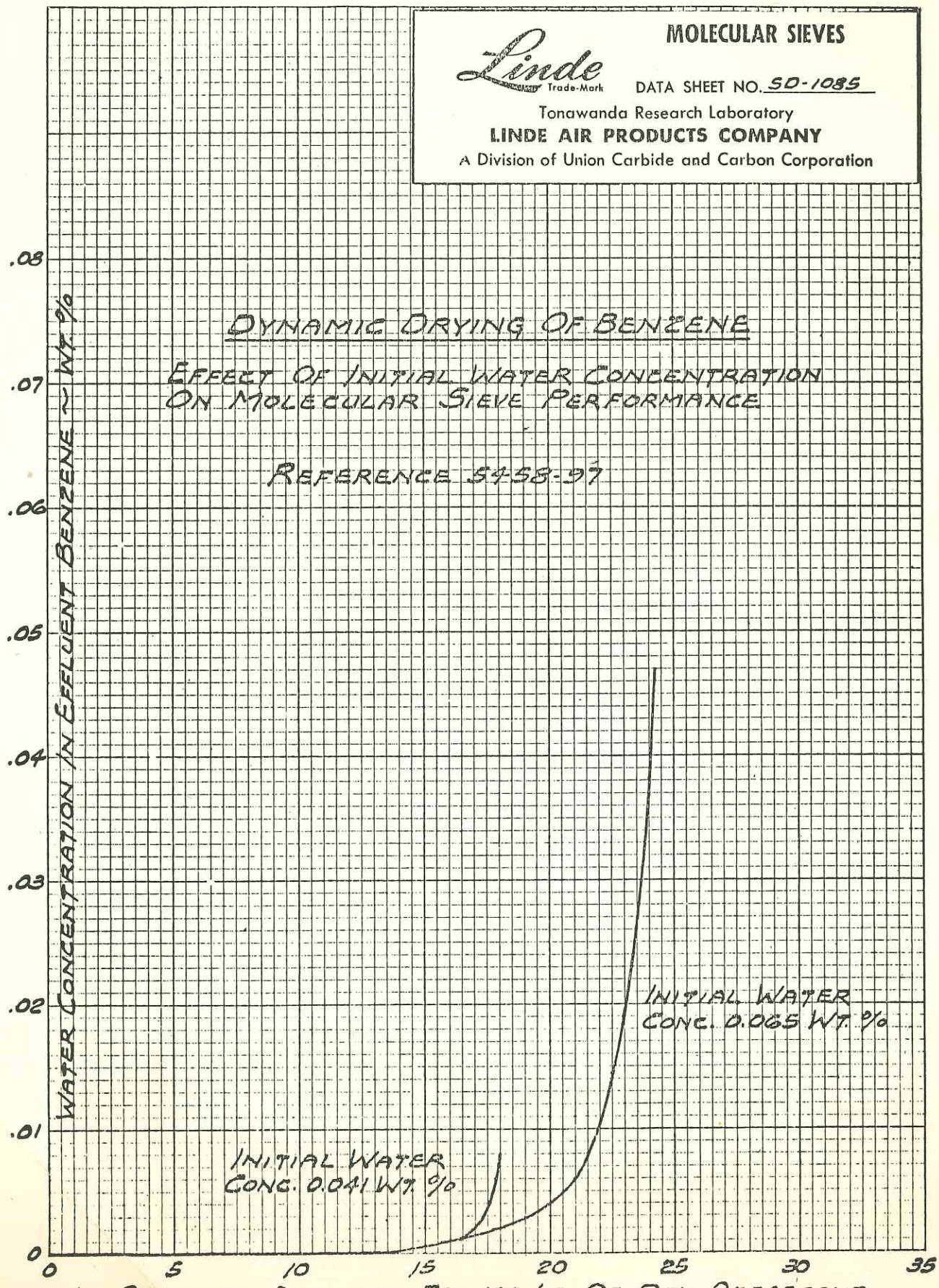
LINDE AIR PRODUCTS COMPANY

A Division of Union Carbide and Carbon Corporation

DYNAMIC DRYING OF BENZENE

EFFECT OF INITIAL WATER CONCENTRATION ON MOLECULAR SIEVE PERFORMANCE

REFERENCE 5458-97



÷ 64